R-6071

STATE OF WASHINGTON
POLLUTION CONTROL COMMISSION

INTER-OFFICE MEMORANDUM

DATE: February 9, 1953

TO: Files

FROM: Ken Jones and Lyman Nielson

SUBJECT: Seattle Gas Company, (City of Seattle), January 27, 1953.

In following up the oil spill which occurred on Lake Union January 11 or 12, 1953, we called on Mr. Norman Ahlquist, manager of the Seattle Gas Company. He showed us through the plant and explained to us the method which they use to produce the gas and to dispose of their waste material. Their raw product is bunker oil and the process for production of gas is somewhat as follows:

The oil is burned in the reaction tower and the gas is cooled by bubbling through a tank of water. This tank removes the coke or carbon material from the gas and the remaining impurity of tar is removed in a spray process. The water used to collect carbon materia is treated in a Dorr clarifier to recover the carbon and the water is re-circulated back through the coke or carbon collection process. There is some overflow from this process which goes to Lake Union. At the time we visited the plant, the material appeared to be fairly clear. There was but slight evidence of any oil or like material around the outfall.

The water used for collecting the tar is then processed in settling tanks. Water recovered in that process is reused for tar collection. Any water which does overflow goes through an oil separator and then to the city sewer system. After the oil, tar, and carbon have been removed from the gas, the gas is cooled and scrubbed. Hydrogen sulphide is removed in an arsenic and soda ash system. This is a closed system and there is apparently no waste from it. The gas is further cooled with lake water and then higher carbon compounds (toluene and Benzene) are absorbed from the gas with oil. From this time on, most of the cooling which is done with water is done with an indirect process--that is, the gas is run over pipes which are cooled with water. After the removal of the higher carbon compounds, gas is ready to be pumped to the city system.

There is some reuse made of the water which is used for cooling. The water used to cool the gas after removal of hydrogen sulphite is used to cool the gas after it has been washed for removal of carbon and tar. This water is again used for removal of the tar from the hot gases.

The stack gases are also washed to remove the carbon and the water used is processed in the Dorr thickeners.

The waste material which contains the greatest amount of polluting material is discharged to the city sewer system. This material from the tar recovery system, even after passing through the oil separator contains considerable oil and is black in color. Should there be any failure to pump from this oil separator to the sewer, they have provided an overflow basin which will hold a short period flow from the plant. The overflow material is discharged to Lake Union. At the present time the overflow sump is nearly full of water so that in case of any pump failure, the overflow material would almost immediately be discharged to Lake Union. We recommended to Mr. Ahlquist that this sump be pumped dry, the water in it being pumped to the city sewer system.

The waste water from the tar recovery process which is treated in this oil separator is quite warm, the temperature is somewhere arount 150° F. This may account in some extent for the poor oil separation which is achieved.

The drains which discharge into Lake Union are those from the Dorr thickeners, which remove the carbon from the original gas cooling water and scrubbing water, and all the storm drains in the plant. The company has provided sumps at the loading dock to take care of any minor spills. At the time of our visit, the sump on the loading dock required cleaning.

As far as the oil spill which occurred on Lake Union is concerned, there is no evidence which indicates that this company was responsible for that oil spill. The original records of the foreman which worked for the company do not indicate any unusual occurrence. Mr. Ahlquist did report that he had heard from some of his employees that a hose had broken on the oil tanker but that was not reported in the foreman's log of occurrences on the dock.

The company appears to be handling its wastes fairly well. Additional protection could probably be obtained if some device were placed on the end of their storm sewers to take care of any accidental spill which may occur.

KJ/ek